Author Index

ABEYSEKERA, R. M. & MCCULLY, M. E., The epidermal surface of the maize root tip. I. Development in normal roots, 413
——, MCCULLY, M. E., The epidermal surface of the maize root tip. II. Abnormalities in a mutant which grows crookedly through soil, 801
AMIJEE, F., STRIBLEY, D. P. & LANE, P. W., The susceptibility of roots to infection by an arbuscular mycorrhizal fungus in relation to age and phosphorus supply, 581
APOSTOLAKOS, P. (see PANTERIS, E.), 509
ASPINALL, D. (see MAPFUMO, E.), 93
AVIO, L. (see GIOVANNETTI, M.), 587
BADECK, F.-W. (see RAMGE, P.), 771
BAILEY, J. A. (see LANE, J. A.), 405
BARENDSE, G. W. M. (see VAN DER SMAN, A. J. M.), 73
BATTEY, N. H. & BLACKBOURN, H. D., Tansley Review No. 57. The control of exocytosis in plant cells, 307
BEERLING, D. J. & WOODWARD, F. I., Ecophysiological responses of plants to global environmental change since the Last Glacial Maximum, 641
BEEVERS, H. (see KWON, D.-K.), 345
BENDEL, U. (see LUDWIG-MÜLLER, J.), 763
BIRCKNER, E. (see HAGEN, C.), 625
BLACKBOURN, H. D. (see BATTEY, N. H.), 307
BLOM, C. W. P. M. (see VAN DER SMAN, A. J. M.), 73
——, (see ENGELAAR, W. M. H. G.), 565
BLOMSTEDT, C. (see KNOX, R. B.), 679
BRAUNE, W. (see HAGEN, C.), 625
BRITS, G. J., CALITZ, F. J., BROWN, N. A. C. & MANNING, J. C., Desiccation as the active principle in heat-stimulated seed germination of *Leucospermum* R. Br. (Proteaceae) in fynbos, 397
BROWN, N. A. C. (see BRITS, G. J.), 397
BRUNOLD, C. (see GALLI, U.), 837
BÜDEL, B. (see GREEN, T. G. A.), 723
BUTLER, R. C. (see LANE, J. A.), 405
CAIOLA, M. G. & CANINI, A., Immunocytochemical localization of Fe-SOD in different cells of *Anabaena cylindrica* Lemm. grown at two different photon irradiances, 361
CALITZ, F. J. (see BRITS, G. J.), 397
CANINI, A. (see CAIOLA, M. G.), 361
CANNY, M. J. (see VARNEY, G. T.), 733
——, (see O'DOWD, N. A.), 743
CAPE, J. N. & PERCY, K. E., Environmental influences on the development of spruce needle cuticles, 787
CHANDLER, J. W. & DALE, J. E., Photosynthesis and nutrient supply in needles of Sitka spruce [*Picea sitchensis* (Bong.) Carr.], 101
CHEN, X.-Y. & HAMPP, R., Sugar uptake by protoplasts of the ectomycorrhizal fungus, *Amanita muscaria* (L. ex Fr.) Hooker, 601
CITERNESI, A. S. (see GIOVANNETTI, M.), 587
CRÉTIN, C. (see TAGU, D.), 339
CUNNINGHAM, A. (see FLYNN, K. J.), 717
DALE, J. E. (see CHANDLER, J. W.), 101
DAVID, F., Altitudinal variation in the response of the vegetation to Late-glacial climatic events in the northern French Alps, 203
DAVIDSON, K. (see FLYNN, K. J.), 717
DIETER JESCHKE, W. (see KLAGGES, S.), 521
DING, B. (see LUCAS, W. J.), 435
DREYER, E. (see EPRON, D.), 381
DU, C. & GALLON, J. R., Modification of the Fe protein of the nitrogenase of *Gloeothece* (Nägeli) sp. ATCC 27152 during growth under alternating light and darkness, 121
DUC, G. (see SAGAN, M.), 757
EDWARDS, D., Tansley Review No. 53. Cells and tissues in the vegetative sporophytes of early land plants, 225
EDWARDS, G. S. (see SAMUELSON, L. J.), 373
ELEFTHERIOU, E. P., Differentiation of abnormal sieve elements in roots of wheat (*Triticum aestivum* L.) affected by cochicine, 813
ENGELAAR, W. M. H. G., VAN BRUGGEN, M. W., VAN DER HOEK, W. P. M., HUYSER, M. A. H. & BLOM, C. W. P. M., Root porosities and radial oxygen losses of *Rumex* and *Plantago* species as influenced by soil pore diameter and soil aeration, 565
ENOCH, H. Z. & OLESEN, J. M., Tansley Review No. 54. Plant response to irrigation with water enriched with carbon dioxide, 249
EPRON, D. & DREYER, E., Long-term effects of drought on photosynthesis of adult oak trees [*Quercus petraea* (Matt.) Liebl. and *Quercus robur* L.] in a natural stand, 381
EPSTEIN, E. (see LUDWIG-MÜLLER, J.), 763
FARRAR, J. F. (see WILLIAMS, M. L.), 367
FERRIS, R. & TAYLOR, G., Contrasting effects of elevated CO_2 on the root and shoot growth of four native herbs commonly found in chalk grassland, 855
FITTER, A. H. (see PEAT, H. J.), 845
FLYGH, G. (see GRÖNROOS, R.), 829
FLYNN, K. J., DAVIDSON, K. & CUNNINGHAM, A., Relations between carbon and nitrogen during growth of *Nannochloropsis oculata* (Droop) Hibberd under continuous illumination, 717
FOGEL, R. (see PREGITZER, K. S.), 575
FOULDS, W., Nutrient concentrations of foliage and soil in South-western Australia, 529
FUGGI, A., Uptake and assimilation of nitrite in the acidophilic red alga *Cyanidium caldarium* Geitler, 351
GALATIS, B. (see PANTERIS, E.), 509
GALLI, U., MEIER, M. & BRUNOLD, C., Effects of cadmium on non-mycorrhizal and mycorrhizal Norway spruce seedlings [*Picea abies* (L.) Karst.] and its ectomycorrhizal fungus *Laccaria laccata* (Scop. ex Fr.) Bk. & Br.: Sulphate reduction, thiols and distribution of the heavy metal, 837
GALLON, J. R. (see DU, C.), 121
GIOVANNETTI, M., SBRANA, C., AVIO, L., CITERNESI, A. S. & LOGI, C., Differential hyphal morphogenesis in arbuscular mycorrhizal fungi during pre-infection stages, 587
GREEN, T. G. A., BÜDEL, B., HEBER, U., MEYER, A., ZELLNER, H. & LANGE, O. L., Differences in photosynthetic performance between cyanobacterial and green algal components of lichen photosymbiodemes measured in the field, 723
GRÖNROOS, R., FLYGH, G., KÄHR, M. & VON ARNOLD, S., Growth analyses on *in vitro*, *ex vitro* and auxin-rooted hypocotyl cuttings of *Pinus contorta* Dougl. ex Loud., 829
HAGEN, C., BRAUNE, W., BIRCKNER, E. & NÜSKE, J., Functional aspects of secondary carotenoids in *Haematococcus lacustris* (Girod) Rostafinski (Volvocales) I. The accumulation period as an active metabolic process, 625
HALL, A. M. (see WHITTINGTON, G.), 867
HALL, V. A., PILCHER, J. R. & MCCORMAC, F. G., Tephra-dated lowland landscape history of the north of Ireland, A.D. 750–1150, 193
HAMPP, R. (see CHEN, X.-Y.), 601
HANCOCK, T. (see MAPFUMO, E.), 93
HEBER, U. (see GREEN, T. G. A.), 723
HENDRICK, R. L. (see PREGITZER, K. S.), 575
HILGENBERG, W. (see LUDWIG-MÜLLER, J.), 763
HILPERT, A. (see KLAGGES, S.), 521
HOFGAARD, A., Seed rain quantity and quality, 1984–1992, in a high altitude old-growth spruce forest, northern Sweden, 635
HOLOPAINEN, T. (see PÄÄKKÖNEN, E.), 615
HONEGGER, R., Tansley Review No. 60. Developmental biology of lichens, 659
HOWARTH, C. J. & OUGHAM, H. J., Tansley Review No. 51. Gene expression under temperature stress, 1
HUTCHINSON, T. C. (see VON FRENCKELL-INSAM, B. A. K.), 547, 555

HUYSER, M. A. H. (see ENGELAAR, W. M. H. G.), 565
JARVIS, J. (see WHITTINGTON, G.), 867
JEFFREE, C. E., Immobilization of pectin, xyloglucan and other soluble plant polysaccharides on blotting membranes, 695
JEFFRIES, D. L., LINK, S. O. & KLOPATEK, J. M., CO_2 fluxes of cryptogamic crusts. I. Response to resaturation, 163
——, LINK, S. O., KLOPATEK, J. M., CO_2 fluxes of cryptogamic crusts. II. Response to dehydration, 391
JOSÈ, M. & PUIGDOMÈNECH, P., Tansley Review No. 55. Structure and expression of genes coding for structural proteins of the plant cell wall, 259
KÄHR, M. (see GRÖNROOS, R.), 829
KAMEL, A. & LÖSEL, D. M., Carbohydrates and water status in wheat plants under water stress, 609
KÄRENLAMPI, L. (see PÄÄKKÖNEN, E.), 615
KENDRICK, W. BRYCE (see KLIRONOMOS, J. N.), 595
KLAGGES, S., SAEED BHATTI, A., SARWAR, G., HILPERT, A. & DIETER JESCHKE, W., Ion distribution in relation to leaf age in *Leptochloa fusca* (L.) Kunth (Kallar grass), 521
KLIRONOMOS, J. N. & KENDRICK, W. BRYCE, Research on mycorrhizas: trends in the past 40 years as expressed in the 'MYCOLIT' database, 595
KLOPATEK, J. M. (see JEFFRIES, D. L.), 163, 391
KNOX, R. B., ZEE, S. Y., BLOMSTEDT, C. & SINGH, M. B., Tansley Review No. 61. Male gametes and fertilization in angiosperms, 679
KOHLMAIER, G. H. (see RAMGE, P.), 771
KWON, D.-K. & BEEVERS, H., Adverse effects of nitrate on stem nodules of *Sesbania rostrata* Brem, 345
LANE, J. A., BAILEY, J. A., BUTLER, R. C. & TERRY, P. J., Resistance of cowpea [*Vigna unguiculata* (L.) Walp.] to *Striga gesnerioides* (Willd.) Vatke, a parasitic angiosperm, 405
LANE, P. W. (see AMIJEE, F.), 581
LANGE, O. L. (see GREEN, T. G. A.), 723
LINK, S. O. (see JEFFRIES, D. L.), 163, 391
LOGI, C. (see GIOVANNETTI, M.), 587
LÖSEL, D. M. (see KAMEL, A.), 609
LUCAS, W. J., DING, B. & VAN DER SCHOOT, C., Tansley Review No. 58, Plasmodesmata and the supracellular nature of plants, 435
LUDWIG-MÜLLER, J., BENDEL, U., THERMANN, P., RUPPEL, M., EPSTEIN, E. & HILGENBERG, W., Concentrations of indole-3-acetic acid in plants of tolerant and susceptible varieties of Chinese cabbage infected with *Plasmodiophora brassicae* Woron., 763
LÜTTGE, U., The role of crassulacean acid metabolism (CAM) in the adaptation of plants to salinity, 59
MADSEN, T. V., Growth and photosynthetic acclimation by *Ranunculus aquatilis* L. in response to inorganic carbon availability, 707
MANNING, J. C. (see BRITS, G. J.), 397
MAPFUMO, E., ASPINALL, D., HANCOCK, T. & SEDGLEY, M., Xylem development in relation to water uptake by roots of grapevine (*Vitis vinifera* L.), 93
MARTIN, F. (see TAGU, D.), 339
MCCORMAC, F. G. (see HALL, V. A.), 193
MCCULLY, M. E. (see ABEYSEKERA, R. M.), 413
——, (see VARNEY, G. T.), 733
——, (see ABEYSEKERA, R. M.), 801
MEIER, M. (see GALLI, U.), 837
MESSAGER, A. (see SAGAN, M.), 757
MEYER, A. (see GREEN, T. G. A.), 723
MILLARD, P. & PROE, M. F., Nitrogen uptake, partitioning and internal cycling in *Picea sitchensis* (Bong.) Carr. as influenced by nitrogen supply, 113
NÜSKE, J. (see HAGEN, C.), 625
O'DOWD, N. A. & CANNY, M. J., A simple method for locating the start of symplastic water flow (flumes) in leaves, 743
OLESEN, J. M. (see ENOCH, H. Z.), 249
ORR, P. T. (see SORRELL, B. K.), 85
OUGHAM, H. J. (see HOWARTH, C. J.), 1
PÄÄKKÖNEN, E., PAASISALO, S., HOLOPAINEN, T. & KÄRENLAMPI, L., Growth and stomatal responses of birch (*Betula pendula* Roth.) clones to ozone in open-air and chamber fumigations, 615
PAASISALO, S. (see PÄÄKKÖNEN, E.), 615
PANTERIS, E., APOSTOLAKOS, P. & GALATIS, B., Microtubule organization and cell morphogenesis in two semi-lobed cell types of *Adiantum capillus-veneris* L. leaflets, 509
PARSONS, R., SPRENT, J. I. & RAVEN, J. A., Humidity and light the growth, development and nitrogenase activity of stem nodules of *Sesbania rostrata* Brem, 749
PEARSON, J. & STEWART, G. R., Tansley Review No. 56. The deposition of atmospheric ammonia and its effects on plants, 283
PEAT, H. J. & FITTER, A. H., The distribution of arbuscular mycorrhizas in the British flora, 845
PERCY, K. E. (see CAPE, J. N.), 787
PILCHER, J. R. (see HALL, V. A.), 193
PLÖCHL, M. (see RAMGE, P.), 771
POLLOCK, C. J. (see WILLIAMS, M. L.), 367
PREGITZER, K. S., HENDRICK, R. L. & FOGEL, R., The demography of fine roots in response to patches of water and nitrogen, 575
PRESS, M. C. (see SEEL, W. E.), 131
PROE, M. F. (see MILLARD, P.), 113
PUIGDOMÈNECH, P. (see JOSÈ, M.), 259
PYTHON, M. (see TAGU, D.), 339
RAMGE, P., BADECK, F.-W., PLÖCHL, M. & KOHLMAIER, G. H., Apoplastic antioxidants as decisive elimination factors within the uptake process of nitrogen dioxide into leaf tissues, 771
RAVEN, J. A. (see PARSONS, R.), 749
RUPPEL, M. (see LUDWIG-MÜLLER, J.), 763
SAEED BHATTI, A. (see KLAGGES, S.), 521
SAGAN, M., MESSAGER, A. & DUC, G., Specificity of the *Rhizobium*–legume symbiosis obtained after mutagenesis in pea (*Pisum sativum* L.), 757
SAMUELSON, L. J. & EDWARDS, G. S., A comparison of sensitivity to ozone in seedlings and trees of *Quercus rubra* L., 373
SARWAR, G. (see KLAGGES, S.), 521
SBRANA, C. (see GIOVANNETTI, M.), 587
SCHUEPP, P. H., Tansley Review No. 59, Leaf boundary layers, 477
SCOTT, E. S. (see SUKARNO, N.), 139
SEDGLEY, M. (see MAPFUMO, E.), 93
SEEL, W. E. & PRESS, M. C., Influence of the host on three sub-Arctic annual facultative root hemiparasites. I. Growth, mineral accumulation and above-ground dry-matter partitioning, 131
SIEBER, T. N. (see SIEBER-CANAVESI, F.), 149
SIEBER-CANAVESI, F. & SIEBER, T. N., Successional patterns of fungal communities in needles of European silver fir (*Albies alba* Mill.), 149
SINGH, M. B. (see KNOX, R. B.), 679
SMIRNOFF, N., Tansley Review No. 52. The role of active oxygen in the response of plants to water deficit and desiccation, 27
SMITH, S. E. (see SUKARNO, N.), 139
SORRELL, B. K. & ORR, P. T., H^+ exchange and nutrient uptake by roots of the emergent hydrophytes, *Cyperus involucratus* Rottb., *Eleocharis sphacelata* R. Br. and *Juncus ingens* N. A. Wakef., 85
SPRENT, J. I. (see PARSONS, R.), 749
STEWART, G. R. (see PEARSON, J.), 283
STRIBLEY, D. P. (see AMIJEE, F.), 581
SUKARNO, N., SMITH, S. E. & SCOTT, E. S., The effect of fungicides on vesicular–arbuscular mycorrhizal fungi and plant growth, 139
TAGU, D., PYTHON, M., CRÉTIN, C. & MARTIN, F., Cloning symbiosis-related cDNAs from eucalypt ectomycorrhiza by PCR-assisted differential screening, 339
TAYLOR, G. (see FERRIS, R.), 855
TERRY, P. J. (see LANE, J. A.), 405
THERMANN, P. (see LUDWIG-MÜLLER, J.), 763
THOMAS, B. J. (see WILLIAMS, M. L.), 367
TIPPING, R., A detailed early postglacial (Flandrian) pollen diagram from Cwm Idwal, North Wales, 175
VAN BRUGGEN, M. W. (see ENGELAAR, W. M. H. G.), 565
VAN DER HOEK, W. P. M. (see ENGELAAR, W. M. H. G.), 565
VAN DER SCHOOT, C. (see LUCAS, W. J.), 435
VAN DER SMAN, A. J. M., BLOM, C. W. P. M. & BARENDSE, G. W. M., Flooding resistance and shoot elongation in relation to developmental stage and environmental conditions in *Rumex maritimus* L. and *Rumex palustris* Sm., 73
VARNEY, G. T., MCCULLY, M. E. & CANNY, M. J., Sites of entry of water into the symplast of maize roots, 733

Von Arnold, S. (see Grönroos, R.), 829
von Frenckell-Insam, B. A. K. & Hutchinson, T. C., Nickel and zinc tolerance and co-tolerance in populations of *Deschampsia cespitosa* (L.) Beauv. subject to artificial selection, 547
——, Hutchinson, T. C., Occurrence of heavy metal tolerance and co-tolerance in *Deschampsia cespitosa* (L.) Beauv. from European and Canadian populations, 555
Whittington, G., Hall, A. M. & Jarvis, J., A pre-Late Devensian pollen site from Camp Fauld, Buchan, north-east Scotland, 867
Williams, M. L., Thomas, B. J., Farrar, J. F. & Pollock, C. J., Visualizing the distribution of elements within barley leaves by energy dispersive X-ray image maps (EDX maps), 367
Woodward, F. I. (see Beerling, D. J.), 641
Zee, S. Y. (see Knox, R. B.), 679
Zellner, H. (see Green, T. G. A.), 723

Subject Index

Abies alba (European silver fir), 149
Abnormal differentiation, 813
Acclimation, 1
Acetylene reduction activity, 345
Acidity, 283
Actin microfilaments, 679
Adiantum capillus-veneris, 509
Adventitious roots, 749
Aerodynamic resistance and conductance, 477
Agt mutant, 801
Akinetes, 361
Allium, 581
Allium cepa, 139
Alternating light and darkness, 121
Altitude, 203
Amanita muscaria, 601
Amino acids, 717
Ammonia pollution, 283
Anabaena cylindrica, 361
Anatomy, 829
Anion distribution, 521
Anion/cation, 283
Annexins, 307
Anthyllis vulneraria (kidney vetch), 855
Apical meristems, 225
Apoplast, 733
Apoplastic antioxidants, 771
Arbuscular mycorrhizal fungus, 581
Arbuscular mycorrhizas, 587, 845
Ascorbate, 27, 771
Ascorbic acid, 771
Auxin, 829
Axial resistance, 93
Barley, 367
Betula pendula, 615
Bicarbonate, 707
Biomass, 717
Biomass partitioning, 131
Blotting membrane, 695
Brassica campestris, 763
Bruckenthalia, 867
Bundle sheath, 367
Cacti, 59
Cadmium, 837
Calcium, 307
Carbohydrate, 609
Carbon dioxide enrichment, 249
Casparian band, 733
cDNA, 339
Cell growth and differentiation, 307
Cell morphogenesis, 509
Cell wall proteins, 259
Chalk grassland, 855
Chemotropism, 587
Chlorophyll fluorescence, 381, 625
Climate change, 175
Climatic regeneration trough, 635
Clones, 615
Clubroot disease, 763
CO_2, 641, 707
CO_2 as plant hormone, 249
CO_2 exchange, 163, 391
Colchicine, 813
Cold, 1
Colonization, 149
Computer search, 595
Co-tolerance, 547, 555
Crassulacean acid metabolism, 59
Crooked roots, 801
Cryptogamic crusts, 163, 391
Cuticle, 787
Cyanidium caldarium, 351
Cyanobacteria, 121, 361
C–N metabolism, 717
Cyperus, 85
Cytoskeleton, 509
Database, 595
Dehydration, 163, 391
Demography, 575
Dendrochronology, 193
Dermal systems, 225
Deschampsia cespitosa, 547, 555
Desiccation, 27
Developmental stage, 73
Devensian, 867
Differential screening, 339
Diffusion, 477
Diffusive resistance, 615
Double fertilization, 679
Drought, 381
Early agriculture, 193
Early Flandrian, 175
Ectomycorrhiza, 339, 837
Eleocharis, 85
Elevated CO_2, 855
Environment, 787
Epidermal surface, 413, 801
Epidermis, 367, 733
Eucalyptus globulus, 339
Exocytosis and vesicle fusion, 307
Fe protein of nitrogenase, 121
Fire-recruiter, 397
Flooding, 73
Foliage, 529
Foliar uptake, 283
Free radicals, 27
French Alps, 203
Fructose, 601, 609
Functional morphology, 659
Fungal communities, 149
Fungal–plant interface, 139
Fungicide, 139
Fusoid cells, 743
G proteins, 307
Gas exchange, 59
Gene expression, 1
Generative cell, 679
Global change, 641
Gloeothece, 121
Glomus mosseae, 581
Glomus sp. 'City Beach', 139
Glucose, 601, 609
Glutathione, 27
Glycine-rich proteins, 259
Ground tissues, 225
Growth, 131, 373
Growth analysis, 615
Growth patterns, 659
Habitat, 845
Haematococcus lacustris, 625
Heat-shock proteins, 1
Heavy metal tolerance, 547
Heavy metals, 555
Heterocysts, 361
High temperature, 1
Host–pathogen relationship, 405
Humidity, 749
Hydroxyproline-rich glycoproteins, 259
Hyphal morphogenesis, 587
Hypocotyl cuttings, 829

Hypodermis, 733
Immobilization, 695
Indole glucosinolates, 763
Indole-3-acetic acid, 763
Indole-3-acetonitrile, 763
Infection probability, 581
Intercellular space formation, 509
Intercellular transport, 435
Intermediate filaments, 679
Internal cycling, 113
Ion distribution, 367
Juncus, 85
Laccaria laccata, 837
Late-glacial, 203
Leaf age, 521
Leaf boundary layer, 477
Leaf conductance, 373
Leaf surface, 787
Leaf veins, 743
Leptochloa fusca (Kallar grass), 521
Leucospermum, 397
Lichen symbiosis, 659
Living external hyphae, 139
Living infection, 139
Lotus corniculatus (birdsfoot trefoil), 855
Macromolecular trafficking, 435
Macroscopic plant remains, 203
Maize root tips, 801
Mesembryanthemum crystallinum, 59
Mesophyll, 367
Microcoleus, 163, 391
Microtubules, 509, 679
Mineral nutrition, 131
Morphological adaptation, 477
Mortality, 575
Multiple metal tolerance, 555
Mutagenesis, 757
MYCOLIT, 595
Mycorrhiza, 595
N_2 fixation, 749
Nannochloropsis oculata, 717
Needle growth, 101
Needles, 149
Net photosynthesis, 373
New Zealand, 723
Nickel, 547
Nitrate assimilation, 351
Nitration inhibition, 345
Nitrite assimilation, 351
Nitrite reductase, 351
Nitrite uptake, 351
Nitrogen, 85, 101, 131, 575
Nitrogen dioxide, 771
Nitrogen supply, 113
Nitrogen uptake, 113
Northern Ireland, 193
Northern red oak, 373
Nucleocytoplasmic transport, 435
Nutrients, 529
O_2, 121
Oak, 381
Old-growth forest, 635
Osmotic filtration, 743
Oxidative stress, 27
Ozone, 615
Palaeoclimates, 641
Palaeophysiology, 225
Palynology, 175
Paracrystals, 813
Parasitic angiosperm, 131, 405
PCR, 339
Pectin, 695
Periodic seed production, 635
pH, 85
Phloem, 521
Phloem-mobility, 521
Phosphoenolpyruvate carboxylase, 59
Phosphorus, 101, 581
Photochemical efficiency, 381
Photoinhibition, 27
Photosynthesis, 27, 381, 625, 723
Photosynthetic capacity, 101
pH-stat, 283
Phytochelatins, 837
Phytoplankton growth dynamics, 717
Picea abies, 635, 837
Picea sitchensis (Sitka spruce), 113
Picea (spruce), 787
Pigments, 717
Pinus contorta, 829
Pisolithus tinctorius, 339
Pisum sativum, 757
Plant development, 435
Plantago media (hoary plantain), 855
Plant-atmosphere interaction, 477
Plasmodesmal development, 435
Pollen analysis, 193, 203, 867
Pollutant uptake, 771
Pollution susceptibility, 283
Polyploid cells, 813
Polysaccharide, 695
PPFD, 723
Pre-infection events, 587
Pre-thallus, 659
Primary plasmodesma, 435
Production, 575
Proline-rich proteins, 259
Protophloem sieve elements, 813
Protoplasts, 601
Pseudocyphellaria, 723
Pyruvate–phosphate dikinase, 59
Radial oxygen loss, 565
Rainforest, 723
Recognition, 587
Report on the Rothamsted 150th Anniversary Conference (*Rothamsted, UK, 12–14 July 1993*), 433
Resistance mechanisms, 405
Respiration, 707
Rhizobium, 757
Rhizosphere, 85
Root, 575
Root diameter, 845
Root environment, 249
Root mucilage, 413
Root porosities, 565
Root tips, 413
Rooting, 829
Roots, 93
Rumex maritimus, 73
Rumex palustris, 73
Salinity, 59
Sanguisorba minor (salad burnet), 855
Scarification, 397
Scotland, 867
Scytonema, 163, 391
Seasonal growth, 113
Secondary carotenoids, 625
Secondary plasmodesma, 435
Seed dormancy, 397
Seed weight, 845
Sesbania rostrata, 345, 749
Shoot elongation, 73
Sitka spruce, 101
Snowdonia, 175
Soil aeration, 565
Soil air, 249
Soil fertility, 845
Soil pore diameter, 565
Soils, 529
Soil-storage, 397
Solute diffusion, 733
South-western Australia, 529
Specificity, 757
Sperm cell, 679
Spruce seed rain, 635
Stable carbon isotopes, 641

Stem nodule, 749
Stem nodules, 345
Stomatal conductance, 641
Stomatal density, 641
Stress, 1
Striga gesnerioides, 405
Submerged macrophytes, 707
Succession, 149
Sucrose, 601, 609
Sugar transport, 601
Sulphorhodamine, 743
Superoxide dismutase, 361
Symbiosis, 339
Symbiotic phenotype, 659
Symplasmic domains, 435
Symplastic movement, 733
Symplastic water movement, 743
Tephrochronology, 193
Tonoplast, 59
Toxicity, 283
Transpiration, 477, 743
Trifolium, 581
Triticum aestivum (wheat), 813
Turgor, 59
Turnover, 575
V_0V_1-ATPase, 59
Vascular systems, 225
Vegetational history, 867
Vigna unguiculata (cowpea), 405
Viral infection, 435
Vitis vinifera (grapevine), 93
Water, 575
Water content, 723
Water stress, 27, 381, 609
Water uptake, 93, 733
Watering with CO_2, 249
Water-use-efficiency, 641
Wheat, 609
X-ray image map, 367
Xylem, 521
Xylem vessels, 93
Xyloglucan, 695
Zea mays (maize), 413, 801
Zinc, 547